

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
30 June 2005 (30.06.2005)

PCT

(10) International Publication Number  
**WO 2005/058521 A1**

(51) International Patent Classification<sup>7</sup>: **B21D 47/00**,  
13/04

(21) International Application Number:  
PCT/RU2003/000554

(22) International Filing Date:  
17 December 2003 (17.12.2003)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicants (*for all designated States except US*):  
AIRBUS [FR/FR]; 1, Rond Point Maurice Bellonte,  
F-31707 Blagnac Cedex (FR). OTKRYTOE AK-  
TIONERNOE OBSHESTVO "KAZANSKY  
NAUCHNO-ISLEDovATELSKY INSTITUT AVIAT-  
SIONNOI TEKHNOLOGII" [RU/RU]; ul. Dementieva,  
2v, Kazan, 420036 (RU).

(72) Inventors; and

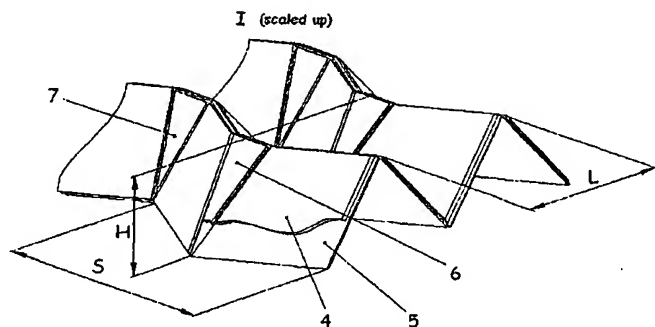
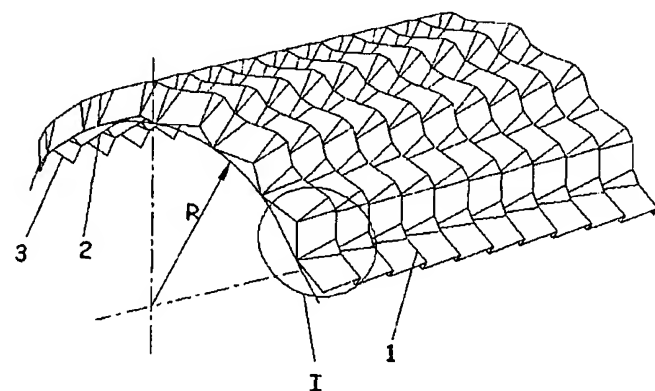
(75) Inventors/Applicants (*for US only*): AKISHEV, Niaz  
Irekovich [RU/RU]; ul. Kulahmetova, 18-209, Kazan,  
420033 (RU). ZAKIROV, Ildus Muhametgaleevich  
[RU/RU]; ul. Vishnevskogo, 10-24, Kazan, 420043 (RU).  
NIKITIN, Alexandr Vladimirovich [RU/RU]; ul. S.  
Halturina, 11/10-60, Kazan, 420032 (RU).

(74) Agent: VOSTRIKOV, Gennadi Fedorovich; Leningrad-  
ski pr., 47-3-215, Moscow, 125167 (RU).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE,  
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,  
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,  
MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,  
RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,  
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: FOLDABLE MANDREL FOR PRODUCTION OF A SINGLE CURVATURE FOLDED CORE FOR A SANDWICH  
PANEL



(57) **Abstract:** The invention can be defined in its most general form as a device for sheet material corrugation by means of bending and can be applied in the devices for production of single curvature folded core used in production of aircraft and craft curvilinear panels. The invention has for its object to broaden the technological capabilities. For that the mandrel is made in the form of a set of alternating rows of plane elements (4, 6, 7) made in the form of trapeziums (4) and isosceles triangles (6, 7) fixed on the flexible material of the base (5) forming thus the gap-pivots between the elements. At the same time the bases of the triangular elements (6, 7) face each other in pairs along the bending lines while said bending lines correspond to the protrusions lines of the core folded structure. The base of the triangular elements (6, 7) is the function of the folded core block curvature radius and the geometrical parameters of the zigzag crimp structure. The width of the gap-pivots is taken so that to provide the folding of the mandrel together with the blank forming thus the single curvature zigzag corrugated structure with the lateral direction of crimps.